

Remarks

In the Claims

Claims 1-25 were previously cancelled without prejudice.

Non-elected claims 33, 35, 37-39, 44-48, 51 and 52 have been withdrawn without prejudice.

Claim 49 has been cancelled without prejudice.

Claims 26-32, 34, 36, 40-43 and 50 stand allowed.

Claims 53 and 54 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Oono et al. '324.

The Examiner is thanked for the courtesy of the brief telephonic interview with the undersigned on October 19, 2009, a summary of which the Examiner indicated would be made of record. The sole issue discussed in the interview was the procedure for requesting rejoinder of the previously withdrawn claims at this juncture in prosecution. No prior art was discussed and no outstanding rejections were discussed in the course of the interview.

Rejoinder of claims 33, 35, 37, 38, 39, 44, 45, 46, 47 and 48 has been requested and is believed to be in order because all of same are dependent claims which incorporate all limitations of the allowed claims noted in the Request for Rejoinder set forth above in this Response.

Withdrawn claims 35, 37, 38, 39, 44, 45, 46, 47 and 48 have been amended herein in purely formal respects, namely to remove improper capitalization of the word "claim" and to begin each claim with an indefinite article according to appropriate English grammar. Being limited solely to providing proper grammar and capitalization such

amendments are of a purely formal, non-substantive nature and were not made for any reason relating to patentability.

Claims 53 and 54 were rejected as allegedly anticipated by Oono et al. '324 which discloses a motor driven diaphragm apparatus of a digital camera having a zoom lens.

Applicant respectfully submits that the rejections of claims 53 and 54 even in their prior form was improper but has amended claims 53 and 54 to highlight their patentable distinctions over the prior art of record including, but not limited to Oono '324 et al., for reasons discussed in further detail below.

Oono '324 et al. discloses a digital camera with a zoom lens that uses a plurality of lenses L1, L2, L3 and a conventional adjustable blade-type iris diaphragm which has three movable diaphragm blades 53 edges of which cooperate to define an adjustable aperture. Applicant has amended claims 53 and 54 to even more clearly patentably distinguish over Oono '324 et al.

First, in contrast to the previous versions of claims 53 and 54 whose preambles could arguably read as merely non-limiting recitations of an intended use which could be overlooked for purposes of a Section 102 analysis, the preambles of claims 53 and 54 have both been amended to conform to the preamble of allowed claim 26 so that both claims 53 and 54 clearly recite a projection objective for carrying out semiconductor microlithography at an extreme ultra-violet wavelength. Moreover, those recitations are no longer confined to the preambles of claims 53 and 54. Rather, claim 53 now makes clear that the recited "optical elements" are "disposed in a beam path for a beam of extreme ultra-violet light." Claim 54, even more explicitly now recites that the optical elements are "arranged for directing a beam of light of extreme ultra-violet wavelength

along a beam path to project an image of a mask into a substrate.” In view of these amendments, it is clear that the recitations are not mere recitations of intended use or choices of an operating wavelength range. Rather, they serve to specify a structure, namely an EUV semiconductor microlithography objective, and thus together with the further amendments which will now be discussed, more clearly illuminate the patentability of claims 53 and 54.

To make it even more clear that claims 53 and 54 cannot be read on an adjustable blade-type diaphragm such as that of Oono ‘324 et al., claim 53 has been amended to recite “each of said diaphragms having a fixed diaphragm opening, said fixed diaphragm opening being different in different respective ones of said diaphragms.” Claim 53 has also been amended to recite that the recited lifting device positions “said fixed diaphragm opening of a selected one of said diaphragms” in the beam path of the extreme ultra-violet light. Although the diaphragm blades (53) of Oono ‘324 et al. have fixed holes (50b) which are fixed, such holes are never in the optical path. Accordingly, not optically active as apertures and are thus, clearly cannot correspond the recited fixed aperture in the EUV beam path as claim 54 now recites. In view of the amendments just discussed, Applicant respectfully submits that claims 53 and 54 as amended do not read on Oono ‘324 et al. Proceeding now to the analysis under 35 U.S.C. §103, it is further submitted claims 53 and 54 in their present form would not have been obvious to a person of ordinary skill in the art at the time Applicant’s invention was made in view of the prior art of record, including without limitation Oono ‘324 et al. alone and/or in any other prior art, or in light of any other knowledge possessed by, or other reasonable motivation acting upon such a person.

From the fact lenses L1, L2, L3 are used therein, a person of ordinary skill would immediately recognize Oono '324 et al. as unsuitable for extreme ultra-violet semiconductor microlithography since lenses are incapable of refracting light of such wavelengths. It is for that reason that mirrors rather than lenses are used as optical elements in EUV semiconductor microlithography projection objections.

In addition, adjustable blade-type iris diaphragms suffer from the drawbacks explained in Applicant's Specification from the second paragraph of page 3 through the third paragraph of page 4. As pointed out in those passages, the stringent space limitations inherent in an EUV semiconductor projection objective make adjustable blade-type diaphragms unsuitable as does their relatively high mass which limits how quickly aperture changes can be made. The objectives recited by amended claims 53 and 54 do not suffer from these limitations and thus cannot reasonably be rendered obvious in view of Oono '324 et al. either alone or in combination with any other prior art of record. Because as presently claimed in claims 53 and 54, the invention uses a plurality of diaphragms having different fixed apertures, no bulky and massive blade adjustment mechanism need be accommodated amidst the optical elements of the beam path to change apertures. Only the portion of fixed diaphragm itself which includes the fixed aperture need be present in the vicinity of the beam path. Moreover, unlike Oono et al. '324 whose aperture can be adjusted in size and shape in only limited ways, the invention allows selection of diaphragms whose fixed openings can differ from one another without such limitations.

Conclusion

In view of the foregoing, reconsideration and withdrawal of the rejections of claims 53 and 54 and a prompt Notice of Allowance of all pending claims is respectfully solicited.

Respectfully submitted,

GrayRobinson, P.A.

By: 

Donald S. Showalter, Reg. No. 33,033

CUSTOMER No. 60474

P.O. Box 2328
Suite 1850
Fort Lauderdale, FL 33303-9998
(954) 761-7473

497174 v2